

Remarks/Arguments

Claims 1-8 and 10-22 are now pending in the present application. Claims 1, 10, 11, 15 and 17-21 have been amended, and claim 9 has been canceled. No claims have been added. Applicants have carefully considered the cited art and the Examiner's comments, and believe claims 1-8 and 10-22 patentably distinguish over the cited art and are allowable in their present form. Reconsideration of the rejection is, accordingly, respectfully requested in view of the above amendments and the following comments.

I. Claim Objections

The Examiner has objected to claims 11-13 and 19 because the phrase "an object distance... varies from between about 5 inches to about 20 inches" recited in claims 11 and 19 is confusing and indefinite.

By the present Amendment, claims 11 and 19 have been amended to recite that "the object distance range comprises from about 5 inches to about 20 inches". This language is clear and definite, and eliminates any possible confusion as to the intended meaning of the claims. Withdrawal of the objection to claims 11-13 and 19 is, accordingly, respectfully requested.

II. 35 U.S.C. § 103, Obviousness

The Examiner has rejected claims 1, 6, 9-10, 14, 15-17 and 22 under 35 U.S.C. § 103(a) as being unpatentable over DE 20207170. This rejection is respectfully traversed.

In rejecting the claims, the Examiner states:

The reference (DE'70) teaches an *optical image pickup system* that is comprised of *an imaging objective lens* (1, Figure 1) serves as the *imaging optics* for forming image of an object wherein the imaging objective lens is a *multifocal optical system* such that it has *different* focal point or focal length for *different* wavelength of the illumination light on the object. The image optical pickup system further comprises *an image receiving unit* (5) for receiving the image of the object formed by the imaging objective lens. This reference also teaches to have *a light illumination means* (7.1 and 7.2) for illuminating the objects with different spectral light (i.e. different wavelength of light), (please see Figure and the abstract).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the object is a single object with a single object distance. However, it is implicitly true that the optical image pickup system can certainly be applied to pickup image for a single object such that by the implicitly

properties of the image pickup system different image of the object as a result of different spectral illumination light will be formed and due to the multifocal property of the imaging objective lens some of the images will be out-of-focused on the constant image plane (which believes to be the same result as the instant application). It would then have been obvious to one skilled in the art to apply the image optical system to form images for *a single object* as an alternative manner of applying the system and since the capability for applying system to a single object is implicitly included in the system such modification really is considered to be the manner in which a claimed apparatus is intended to be employed and it does not really differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Madham, 2USPQ2d 1647 (1987).

Office Action dated April 18, 2005, pages 2 and 3.

Claim 1, as amended herein, is as follows:

1. An imaging system, comprising:
 - an imaging optics for forming an image of an object at an unknown object distance within an object distance range, said imaging optics having a focal length that varies with wavelength of light that illuminates the object;
 - an image receiving unit for receiving an image of said object formed by said imaging optics;
 - a light source for sequentially illuminating said object with light of different ones of a plurality of wavelengths for providing a plurality of images of said object received by said image receiving unit; and
 - a processor for selecting a desired image among said plurality of received images.

Applicants submit that DE'70 does not disclose or suggest, and actually teaches away from, the claimed recitations of “a light source for sequentially illuminating” an object at an unknown object distance within an object distance range “with light of different ones of a plurality of wavelengths for providing a plurality of images of said object received by said image receiving unit”, and “a processor for selecting a desired image among said plurality of received images”; and, accordingly, that claim 1 is not unpatentable in view of DE'70.

DE'70 appears to describe an illumination system for forming images of objects in a constant image plane from different object distances. As described in the “BASIC-ABSTRACT” on page 1 of DE'70 “The imaging objective lens is designed as a multifocal optical system which, dependent on the illumination mode, forms images of objects in a constant image plane from different object distances” (emphasis added). Thus, DE'70 teaches only that images of objects located at different, apparently known, object distances can be formed by illuminating each of the objects with light of a different wavelength. The reference does not disclose, and does not suggest, “a light source for sequentially illuminating said

object with light of different ones of a plurality of wavelengths for providing a plurality of images of said object received by said image receiving unit" as recited in claim 1. Instead, In DE'70, it appears that a single image of each of a plurality of objects located at different object distances is being formed.

Even if, as the Examiner proposes, the optical image pickup system in DE'70 can be applied to pickup an image for a single object, it is not implicit, and it is nowhere suggested in the reference that the single object is at an unknown object distance within an object distance range, and that the object be sequentially illuminated with light of different ones of a plurality of wavelengths for providing a plurality of images of said object received by said image receiving unit.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic *In re Rijckaert*, 9 F.3d 1532, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

DE'70 contains no disclosure that would suggest to persons of ordinary skill in the art the claimed limitation of a light source for sequentially illuminating an object that is at an unknown object distance within an object distance range with light of different ones of a plurality of wavelengths for providing a plurality of images of the object received by the image receiving unit. Only the present application contains any such disclosure, and the Examiner appears to be using hindsight based on Applicants' own disclosure in reaching a conclusion that a light source for "sequentially illuminating said object with light of different ones of a plurality of wavelengths for providing a plurality of images of said object received by said image receiving unit" is implicit in DE'70. Such a light source is not implicit in DE'70, is nowhere disclosed or suggested in DE'70, and is actually contradictory to the disclosure in DE'70.

DE'70 also does not disclose or suggest "a processor for selecting a desired image among said plurality of received images" as now recited in claim 1. In rejecting original claims 9, 10 and 15-16, the Examiner asserted that the signal evaluator illustrated in DE'70 "serves as the image processor that evaluates the images detected and it implicitly would

evaluate the focusing and image quality received by the image receiving unit". Applicants respectfully disagree.

The reference discloses only that a signal evaluator is included in the optical system disclosed therein. The reference contains absolutely no disclosure describing the function of the signal evaluator. There is certainly no teaching or suggestion in the reference that the signal evaluator selects "a desired image among said plurality of received images" as recited in claim 1. In fact, inasmuch that DE'70 does not disclose or suggest taking sequential images of an object, as discussed above, it would contradict the clear teachings of the reference that a function of the signal evaluator is to select a desired image among a plurality of received images of an object. Again, the Examiner appears to be using teachings contained only in the present application to assign a function to the signal evaluator in DE'70 that would appear to have no use in the system of DE'70.

For at least all of the reasons discussed above, claim 1 is believed to patentably distinguish over DE'70 in its present form, and withdrawal of the rejection thereunder is respectfully requested.

Claims 6, 10 and 14 depend from and further restrict claim 1, and also patentably distinguish over DE'70, at least by virtue of their dependency.

Independent claim 15 has been amended to recite the present invention more clearly, and reads as follows:

15. A method for providing a desired image of an object, comprising:
sequentially illuminating an object at an unknown object distance within an object distance range with light of different ones of a plurality of wavelengths;
forming a plurality of images of said object with an imaging system having a focal length that varies with a wavelength of the light that illuminates the object; and
selecting a desired image among said plurality of formed images.

For substantially the same reasons as discussed above with respect to claim 1; DE'70 does not disclose or suggest any of the claimed steps of "sequentially illuminating an object at an unknown object distance within an object distance range with light of different ones of a plurality of wavelengths", "forming a plurality of images of said object with an imaging system having a focal length that varies with a wavelength of the light that illuminates the object", and "selecting a desired image among said plurality of formed images". Claim 15, accordingly, patentably distinguishes over DE'70 and should be allowable in its present form.

Claims 16, 17 and 22 depend from and further restrict claim 15, and should also be allowable in their present form, at least by virtue of their dependency.

Therefore, the rejection of claims 1, 6, 9-10, 14, 15-17 and 22 under 35 U.S.C. § 103(a) has been overcome.

III. 35 U.S.C. § 103, Obviousness

The Examiner has rejected claims 2-5, 7-8 11-13 and 18-21 under 35 U.S.C. § 103(a) as being unpatentable over DE 20207170 as applied to claims 1 and 15 above, and further in view of Hasman et al. (U.S. Patent No. 5,526,338). This rejection is respectfully traversed.

The Examiner has applied Hasman et al as teaching an image pickup device that includes a refractive/diffractive lens in which the focal length varies inversely with the wavelength of the illuminating light. Claims 2-5, 7-8, 11-13 and 18-21, however, depend from and further restrict one of independent claims 1 and 15; and Hasman et al fails to supply the deficiencies in DE'70 as described above with respect to independent claims 1 and 15. Claims 2-5, 7-8, 11-13 and 18-21, therefore, should also be allowable in their present form, at least by virtue of their dependency.

Therefore, the rejection of claims 2-5, 7-8 11-13 and 18-21 under 35 U.S.C. § 103 has been overcome.

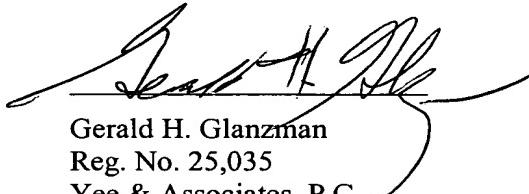
IV. Conclusion

For at least all the above reasons, claims 1-8 and 10-22 are believed to patentably distinguish over DE'70 considered alone or in view of Hasman et al, and it is believed that the present application is now in condition for allowance. It is, accordingly, respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



Gerald H. Glanzman
Reg. No. 25,035
Yee & Associates, P.C.
P.O. Box 802333
Dallas, TX 75380
(972) 385-8777
Attorney for Applicants